The source of Peter Martyr's information was undoubtedly Columbus himself, for we find the same fishing incident related, together with a more trustworthy description of a species of sucking-fish (probably *Echeneis naucrates*), in those fragments of the Journal of the second voyage of the great discoverer which have been preserved by his son Ferdinand, and by the chroniclers Bartolomé de Las Casas and Fray Andrés Bernádez.

Bernáldez, curate of Los Palocios, was a personal friend of Columbus, and had access to his Journals and other papers. Thirteen chapters of his history are devoted to the Admiral and his discoveries. In chapter 126 occurs an interesting passage relating to the Remora, which no doubt faithfully reproduces the famous navigator's own words. The only naturalist of modern times who has commented upon the incident in question, so far as the present writer has been able to find, is Alexander von Humboldt. Poey briefly refers to it in his description of the so-called *Echeneis guaican,* and Dr. Günther appears to doubt that the Remora was actually employed in the capacity narrated.

The passage in Bernáldez reads :—

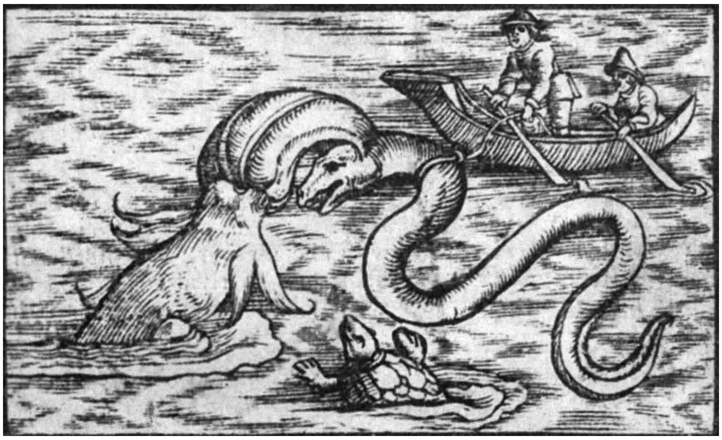

FIG. 2.—The Remora or "Reversus" as described by Christopher Columbus. (After Conrad Gesner, 1558.)

"[At the Queen's Gardens, off the coast of Cuba] on the day following [May, 1494] the Admiral being very desirous to find someone from whom he might obtain information, there came a canoe to hunt for fish :—for they call it hunting, and they hunt for one fish with another. They have fishes of a certain kind which they hold by a line fastened to their tails, and which are like the conger-eels in shape; and have a large mouth armed with suckers, like the cuttle-fish. They are very fierce, like our ferrets, and when they are thrown into the water, they go to fasten themselves upon some of the fishes there, and sooner die than let go their hold, till they are drawn out of the water. The fish is very light, and as soon as he has taken hold, the Indians draw him by the long cord tied to his tail, and immediately throw him into the water again; and in this way, they take one every time. As these hunters were at a distance from the caravel, the Admiral sent his armed boats to them, contriving it so that they should not escape to land. As the boats came up to them, these hunters called out to the men, as unconcernedly as if they had known them all their lives, to stop, because one of the fishes had fastened upon a large turtle, and they must wait till they had got it into the canoe.

"This our men did, and afterwards they took the canoe, and those in it, together with four turtles, each of which was three *codos* long, to the ships of the Admiral; and there they gave some account of these islands, and of their cacique, who was close at hand, and had sent them to hunt. They asked the Admiral to go on shore, and they would make for them a great feast, and would give to them all four of the turtles." C. R. EASTMAN.

American Museum of Natural History, New York.

A Mathematical Paradox.

"Two horses, side by side and four feet apart, run once round a race track. How much further does the outer horse go than the inner?"

If this question is asked, in nearly every case the immediate reply is that it depends on the size of the track. It is somewhat paradoxical that the distance is 8π, or a little more than 25 ft., is actually independent both of the size and of the shape of the race track, provided that there is no reversal of curvature.

This problem is stated in a more formal manner in Williamson's "Integral Calculus," namely, if two curves have the same evolute the difference of their lengths is $4\pi D$, where D is the distance between the curves. A. S. E.

A Mistaken Wasp.

THE mistake made by the cabbage butterfly referred to in NATURE of May 20, appears to be made by other insects.

Quite recently (last week in April) whilst having lunch in a sunny room decorated with a light-coloured paper with a floral design of pink roses in full bloom, a large wasp entered and became very agitated; observing it for some little time, I noticed it alight every moment or so in the centre of one of the roses, remain a moment, then off again to another; it appeared to be getting very angry as it went from rose to rose, which it kept on doing during the time I was in the room—twenty minutes or so. W. A. GUNN.

Corporation Museum and Art Gallery,
Dock Street, Newport, Mon., May 22.

THE PENGUINERY RE-VISITED.[1]

THE author's fascinating popular account of the social life of the Adélie Penguin (*Pygoscelis adeliae*) has been already reviewed in these columns, but the subject is of such great interest and Dr. Levick is such a consummate observer that we make no apology for turning to this second and more formal publication in the hope of adding to the completeness of the picture previously presented.

Apart from the observations made by the late Dr. Edward A. Wilson, which may be accepted, we are told, as "entirely correct," previous descriptions of the life of the Adélie Penguins have failed to do justice to these wonderful birds. About the middle of October they appear in ones and twos on the beach at Cape Adare, and by the end of the month there may be three-quarters of a million (Fig. 1). They toddle along on the sea-ice at the rate of about two-thirds of a statute mile per hour, with about 130 steps to the minute, and this mode of progression they alternate with tobogganing on their breasts, using their legs as propellers (Fig. 2). Some of them stop on the low ground; others make straight for the cliffs and nest on the ledges. Dr. Levick found a colony established at the very summit, about 1000 feet above the sea, a site that involved a prodigious amount of labour later on when the young had to be fed. Several journeys up and down had to be made in the twenty-four hours, and the up-journey meant about two hours' strenuous climbing. Very interesting in its prescience was the entire avoidance of an attractive knoll rising out of a shallow lake near the beach. It was very suitable when the penguins came ashore, but later on it was surrounded by foul water slimy with guano, to wading in which the birds have a deeply-rooted objection. But how did they know? Another interesting fact was the occasional raising of nests which had been built too low, and were in danger of being flooded in thaw time.

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[1] British Museum (Natural History). British Antarctic (*Terra Nova* Expedition, 1910. Natural History Report. Zoology. Vol. i., No. 2. "Natural History of the Adélie Penguin." By Staff-Surgeon G. Murray Levick. Pp. 55–84+plates i–xxi. (London: British Museum (Natural History), and Longmans, Green, and Co., 1915.) Price 5*s*.

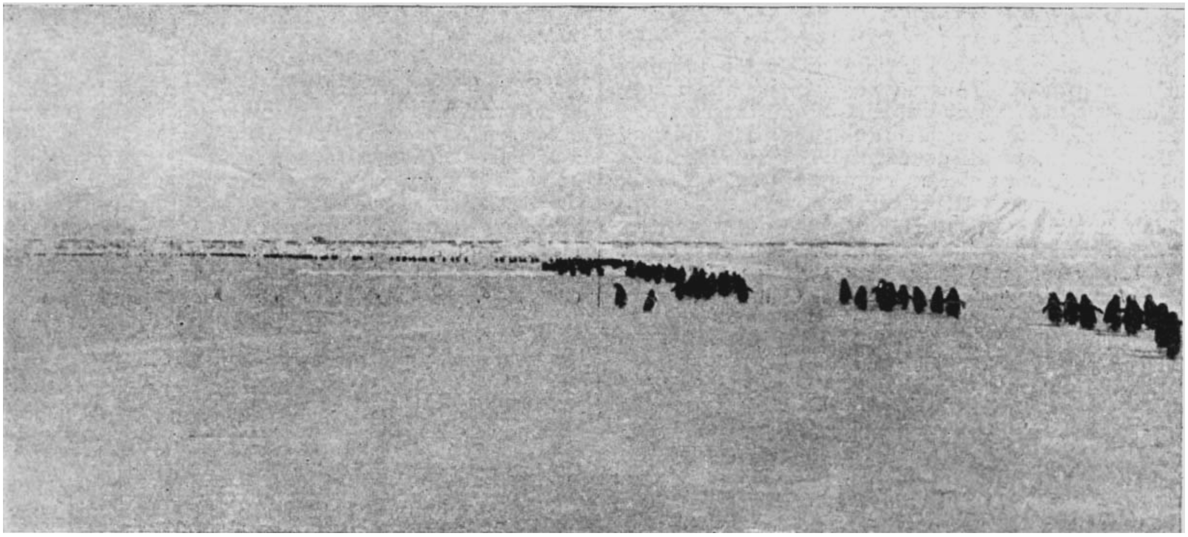

Fig. 1.—A long line of Adelie Penguins approaching their breeding ground. From "Natural History of the Adélie Penguin.

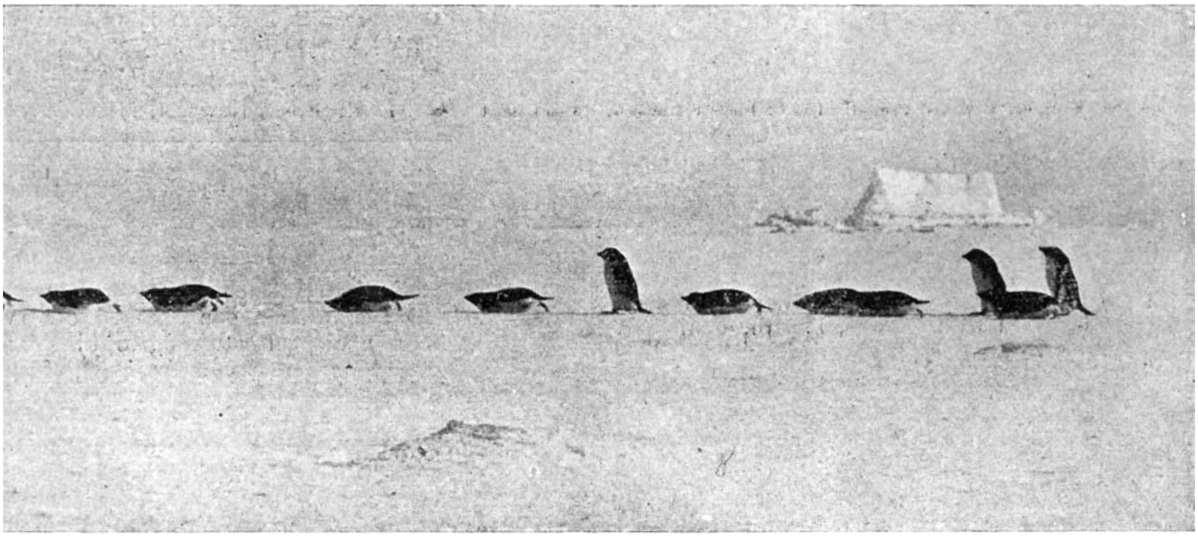

Fig. 2.—Adélies walking and "tobogganing" over sea-ice to the Rockery. From "Natural History of the Adélie Penguin."

In connection with the mating, with its deadly but never fatal encounters of rival cocks and the quaint approaches that the victor makes to the coy hen, the observer proved by marking the breasts with paint that couples remain perfectly faithful to one another all through the breeding season. Careful watching of marked nests showed that the shortest period of fasting (between the arrival at the rookery and the hatching of the chicks) is about eighteen days, and the longest about twenty-eight days. The reason for the close-sitting is to guard the stones of the nest from being stolen, and to guard the young wives from the attentions of strange cocks. Consequent on the abstinence from food the excreta around the nest are bright green—the colour of the bile, and without the red guano which is deposited after the birds begin to feed. They depend solely on euphausias, somewhat prawn-like crustaceans rich in zoonerythrin.

When the eggs are laid one of the parents goes off for some days (up to seven or ten), and on its return the other partner has a similar respite. When the chicks are hatched the alternations are frequent. Very quaint is the way in which the parents often overload themselves with the euphausias with which they feed the young, so that they have to lean back to keep their balance. Sometimes the toil is too much for them, and they lose all their take and all their trouble at the last moment For the chicks will not pick anything off the ground, or eat save in the proper way by thrusting their heads down their parents' throats.

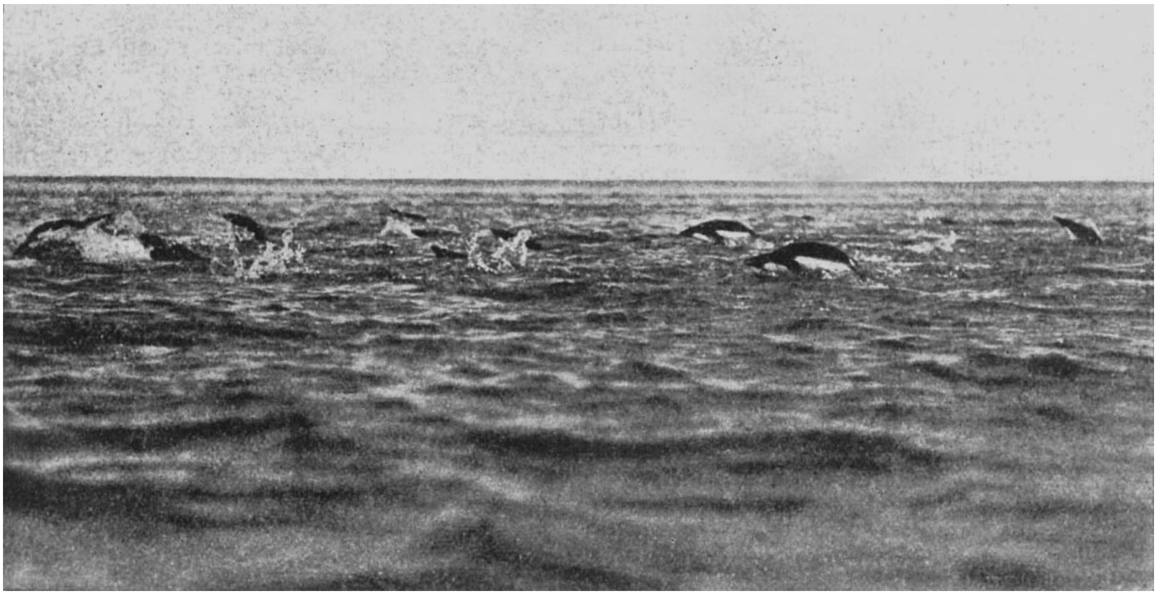

Fig. 3.—Adélie Penguins "porpoising." From "Natural History of the Adélie Penguin."

The rate of growth is astonishing. Thus the egg weighed 4·56 ounces, the newly-hatched chick 3 ounces, the five days' old 13 ounces, the six days old 15·75, the eight days old 24·75, the nine days old 28·5, the eleven days old 37·75. When the chicks are about a fortnight old the parents "pool their offspring," leaving them in the care of domesticated individuals, while they enjoy themselves holidaying in the sea (Fig. 3) or on the ice. Of their "touch-last" and "excursion steamer" games, of their mortal fear of the voracious sea-leopard (*Hydrurga leptonyx*)—their only enemy in adult life save man and his dogs, of the high mortality among the young for which the voracious skuas and the vicious cocks are largely to blame, of the "ecstatic attitude" and "chant de satisfaction" which mark a high sense of well-being among the Adélies; of the toughness of the birds, seen, for instance, in their surviving being imprisoned for weeks in a superficially frozen snow-drift; of the puzzling "drilling on the ice," which may be a reminiscence of massing before migration; and of the autumnal farewell to the antarctic shores and the journey to unknown winter-quarters, the report itself must speak. The author has our felicitations.

THE ANTIQUITY OF HINDU CHEMISTRY.

THE *Panjabee* of February 23 contains a report of a lecture on the antiquity of Hindu chemistry, given before the Punjab University, Lahore, by Dr. P. C. Râу, of the Presidency College, Calcutta, which is of interest as demonstrating the origin of Indian chemistry and the influence of Hindu learning upon that of the Arabs and of European nations. Two thousand five hundred years ago the Hindus were skilled in the examination and valuation of gold and gems; in a knowledge of the colouring of gems and jewels, and in certain metallurgical processes. Long before the age of Paracelsus they recognised that chemistry was the handmaid of medicine, and that its development was intimately bound up with progress in the art of healing. As with the Iatro-chemists, Hindu chemistry became, for a time, the chemistry of mercury. In the *Sarvadarsansamgraha* of Madhavacharyya the chemistry of mercury ranks, indeed, as a separate system of philosophy. "By the science of mercury is to be understood not only a branch of chemistry, but as applicable even to salvation, since the partaking of mercurial preparations renders the body imperishable." From